

AMENDMENTS TO THE DRAWINGS:

Replacement Formal Drawings for Figures 7-9 have been filed concurrently.

REMARKS

In view of the above amendments and following remarks, reconsideration and further examination are requested.

Replacement formal drawings have been provided for Figures 7-9 so as to designate these figures as --Prior Art--.

The specification and abstract have been reviewed and revised to make editorial changes thereto and generally improve the form thereof, and a substitute specification and abstract are provided. No new matter has been added by the substitute specification and abstract.

Claims 1-7 have been amended and claims 8-14 have been added.

The instant invention pertains to a method of making a hole in a ceramic green sheet by irradiating the ceramic green sheet with a laser beam. Such a method is generally known in the art, but suffers from a drawback in that when the ceramic green sheet contains glass material, a melting portion of the glass material exists while being irradiated with the laser beam. This melting portion of the glass material appears as a melting substance 17 remaining at an edge of via-hole 16, as shown in Figure 9, and prevents the via-hole from being adequately filled with paste of electrically conductive material for formation of a via-electrode.

Applicants have addressed and resolved this drawback by providing a unique manner of making a hole in a green sheet including ceramic and glass. Specifically, a surface of the ceramic green sheet is irradiated with a laser beam having a substantially square waveform pulse in which a minimum of an output is 60% of a maximum of the output. By irradiating the surface with such a laser beam, no portion of material of the ceramic green sheet melts around the hole being formed. Claim 1 is representative of this inventive method.

Claims 1-7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamamoto et al. in view of Smart. This rejection is respectfully traversed, and the references relied upon by the Examiner are not applicable with regard to the currently amended and added claims for the following reasons.

While Smart does disclose utilizing a laser beam having a square waveform pulse, this reference does not disclose or suggest that the laser beam has a minimum power that is more than 60% of a maximum power, as required by claim 1. As expressed previously, the significance of using

such a laser beam having such a power requirement is that a clean hole, i.e. one without melting portions along an edge thereof, can be provided. Thus, a combination of Yamamoto et al. and Smart would not have resulted in the invention as recited in claim 1 prior to the current amendment thereto.

In any event, claim 1 has been amended so as to further distinguish the invention from the references relied upon by the Examiner. In this regard, claim 1 has been amended to recite a method of making a hole in a ceramic green sheet including ceramic powder and **silicate glass**. A method of making a hole in such a ceramic green sheet is not taught or suggested by either of the references relied upon by the Examiner.

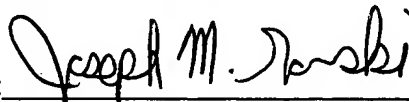
In this regard, while Yamamoto et al. does disclose a ceramic green sheet, this green sheet is not disclosed to include silicate glass. Thus, a combination of Yamamoto et al. and Smart would not have resulted in the invention as recited in currently amended claim 1. Accordingly, claims 1-14 are allowable.

In view of the above amendments and remarks, it is respectfully submitted that the present application is in condition for allowance and an early Notice of Allowance is earnestly solicited.

If after reviewing this Amendment, the Examiner believes that any issues remain which must be resolved before the application can be passed to issue, the Examiner is invited to contact the Applicants' undersigned representative by telephone to resolve such issues.

Respectfully submitted,

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